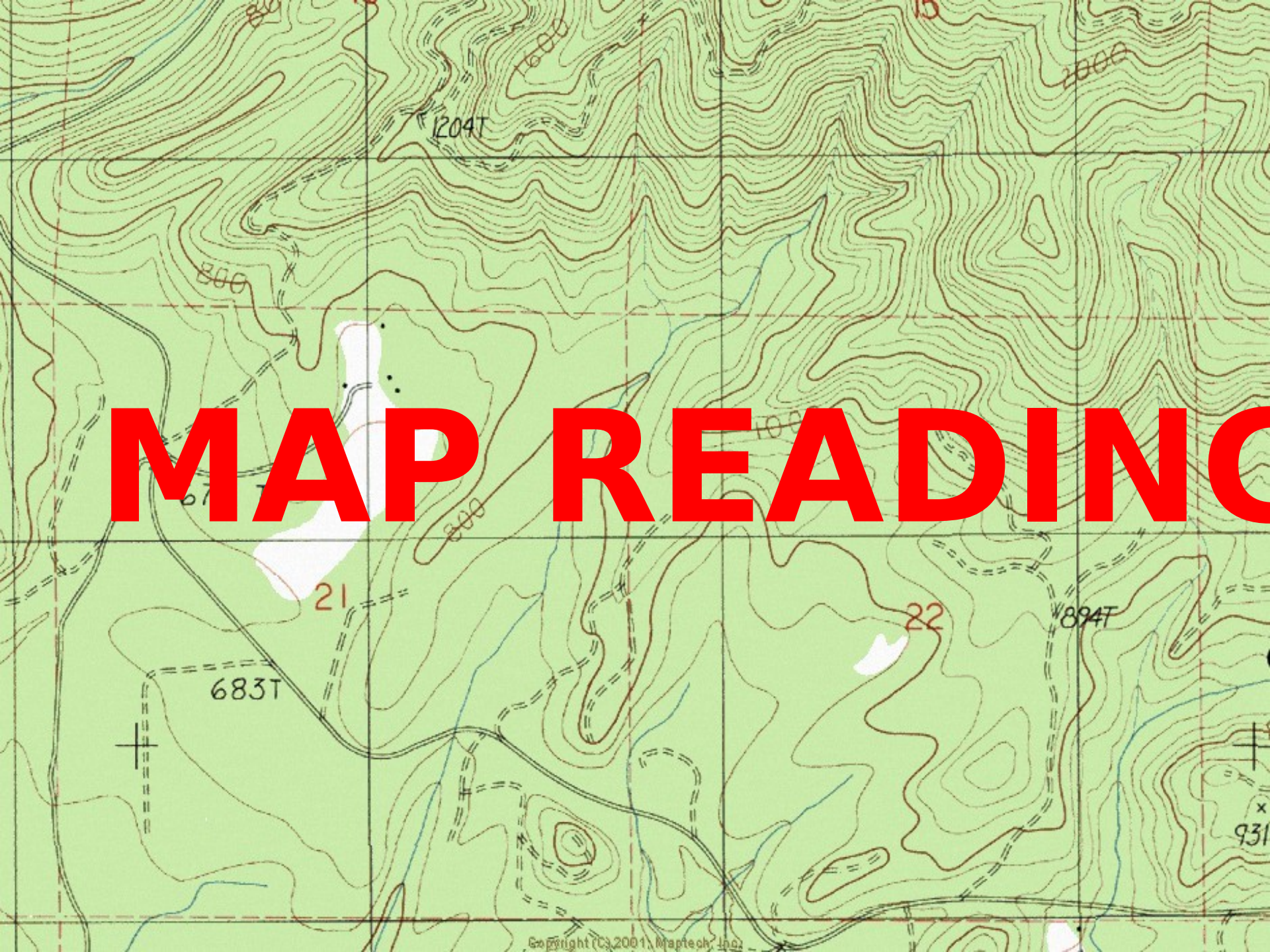
MAP READING
1204T
800
1000
2000
21
22
683T
894T
931
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ENABLING LEARNING OBJECTIVE

ACTION: LOCATE AN UNKOWN POINT ON A MAP BY INTERSECTION.

CONDITIONS: IN A CLASSROOM ENVIRONMENT GIVEN A STANDARD 1:50,000 SCALE MILITARY MAP OF 'TENINO', THE LOCATION OF TWO KNOWN POINTS, A STRAIGHT EDGE, AND A PROTRACTOR (GTA 5-2-12), A PENCIL, AND AN OBJECT OR TERRAIN FEATURE FOR WHICH TO DETERMINE THE GRID LOCATION.

STANDARDS: DETERMINE THE 100,000 METER SQUARE IDENTIFICATION LETTERS AND SIX-DIGIT COORDINATES OF THE OBJECT OR TERRAIN FEATURE TO WITHIN 100 METERS.

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INTERSECTION

- DETERMINE THE POSITION OF AN UNKNOWN POINT BY OCCUPYING AT LEAST TWO, BUT PREFERABLY THREE, KNOWN POSITIONS.
- DETERMINE THE AZIMUTH TO THE UNKNOWN POINT FROM THESE POSITONS.
- PLOT THE AZIMUTHS FROM THE POSITONS TO LOCATE THE UNKNOWN POINT BY THEIR INTERSECTION.

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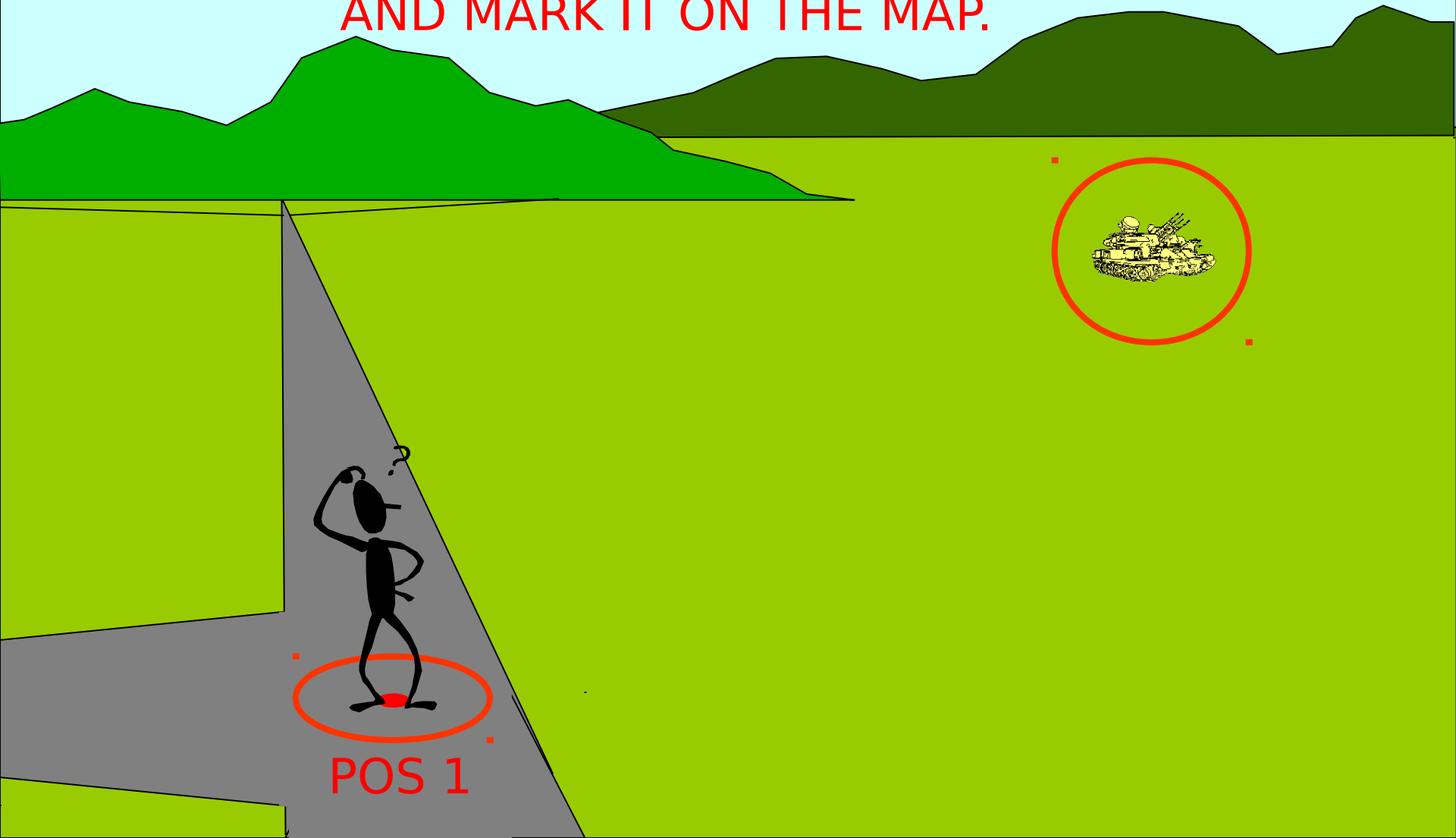
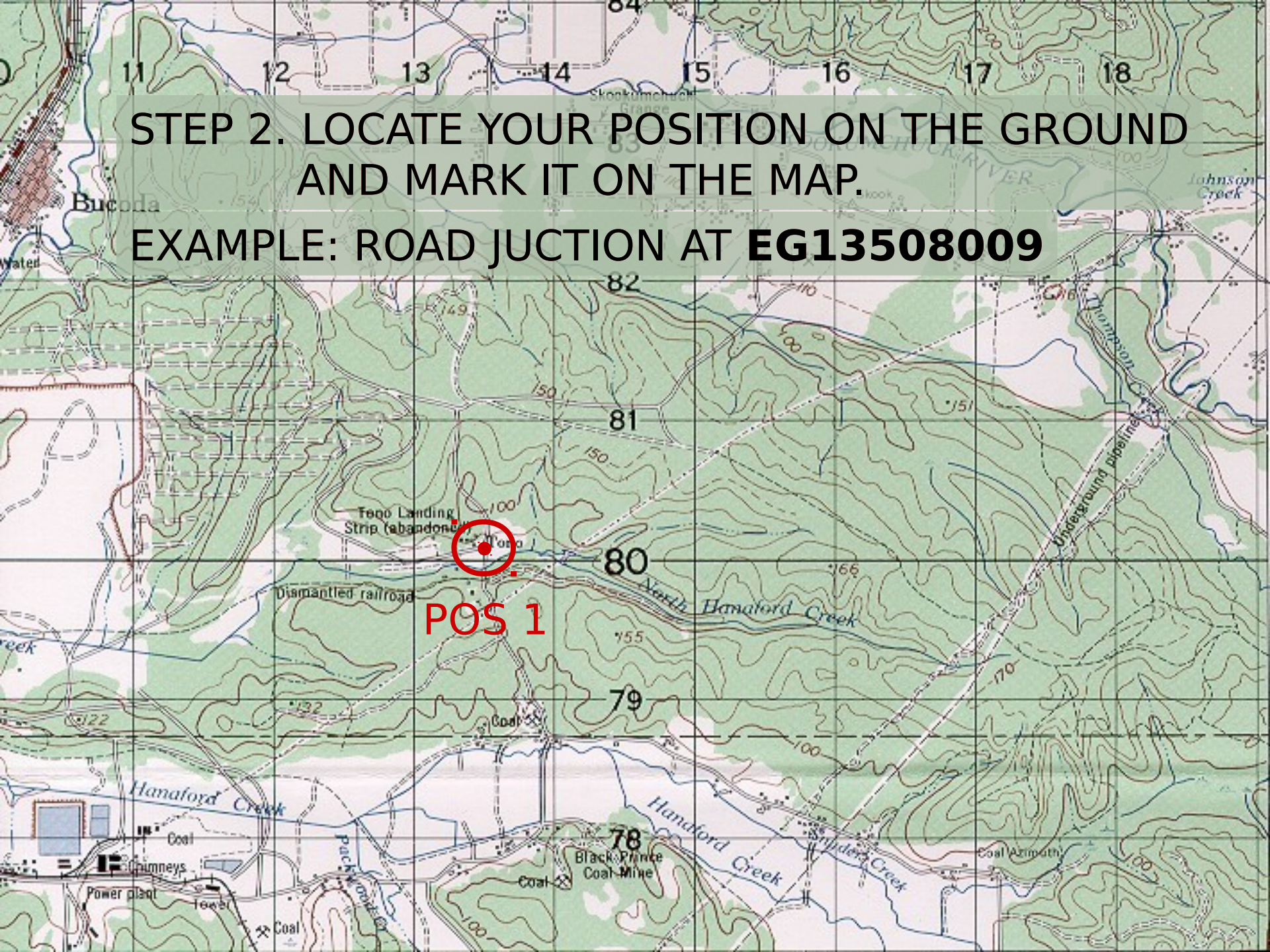
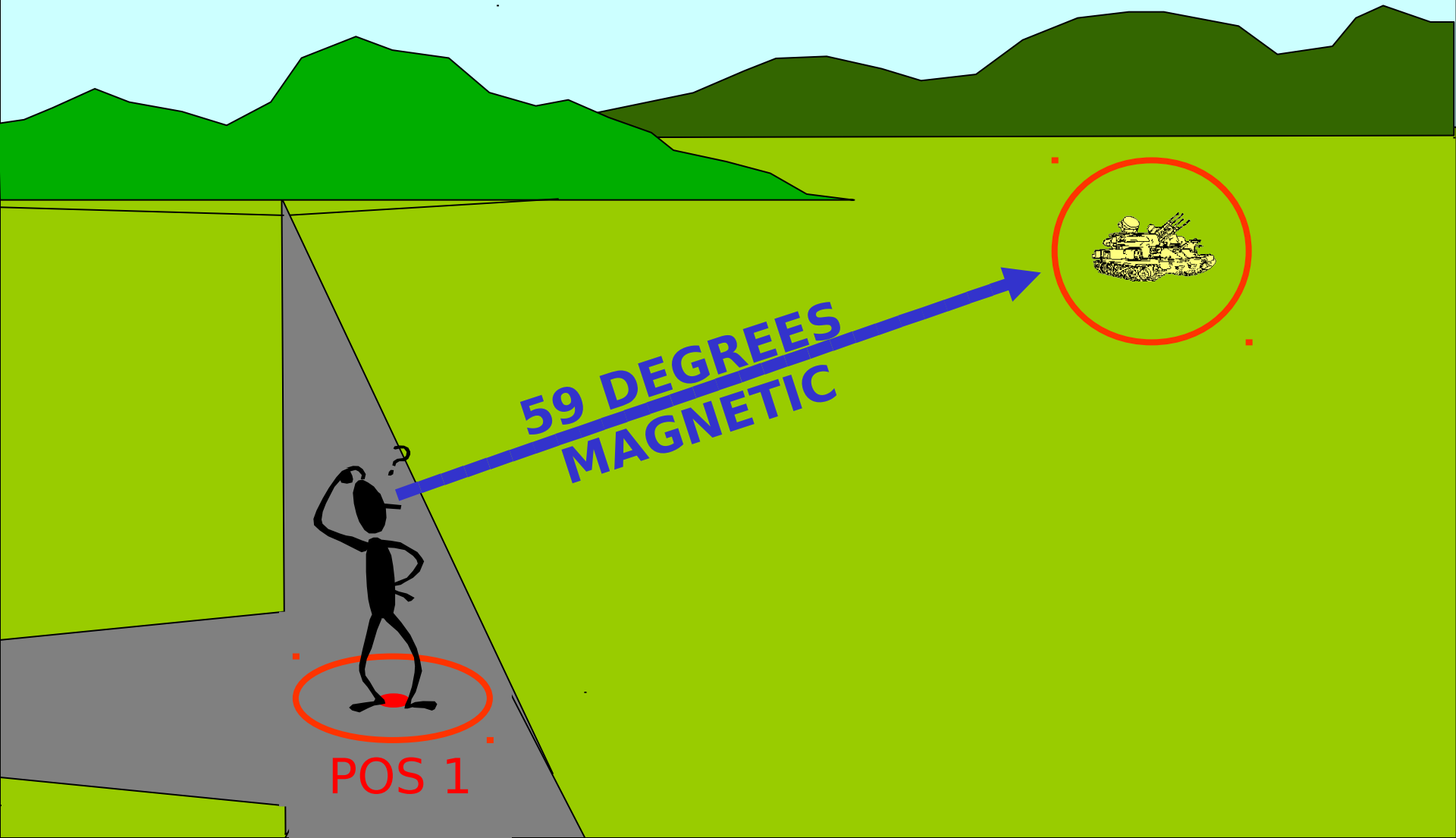
STEP 1. SIGHT THE UNKNOWN POINT ON THE GROUND.

STEP 2. LOCATE YOUR POSITION ON THE GROUND AND MARK IT ON THE MAP.




STEP 2. LOCATE YOUR POSITION ON THE GROUND AND MARK IT ON THE MAP.
EXAMPLE: ROAD JUCTION AT **EG13508009**
POS 1
Bucoda
Johnson Creek
Thompson Creek
Underground pipeline
Fego Landing Strip (abandoned)
Dismantled railroad
North Hanaford Creek
Hanaford Creek
Coal
Chimneys
Power plant
Tower
Black Prince Coal Mine
Coal Azimuth
11
12
13
14
15
16
17
18
78
79
80
81
82

STEP 3. DETERMINE THE MAGNETIC AZIMUTH FROM THE ROAD JUNCTION TO THE ENEMY POSITION.



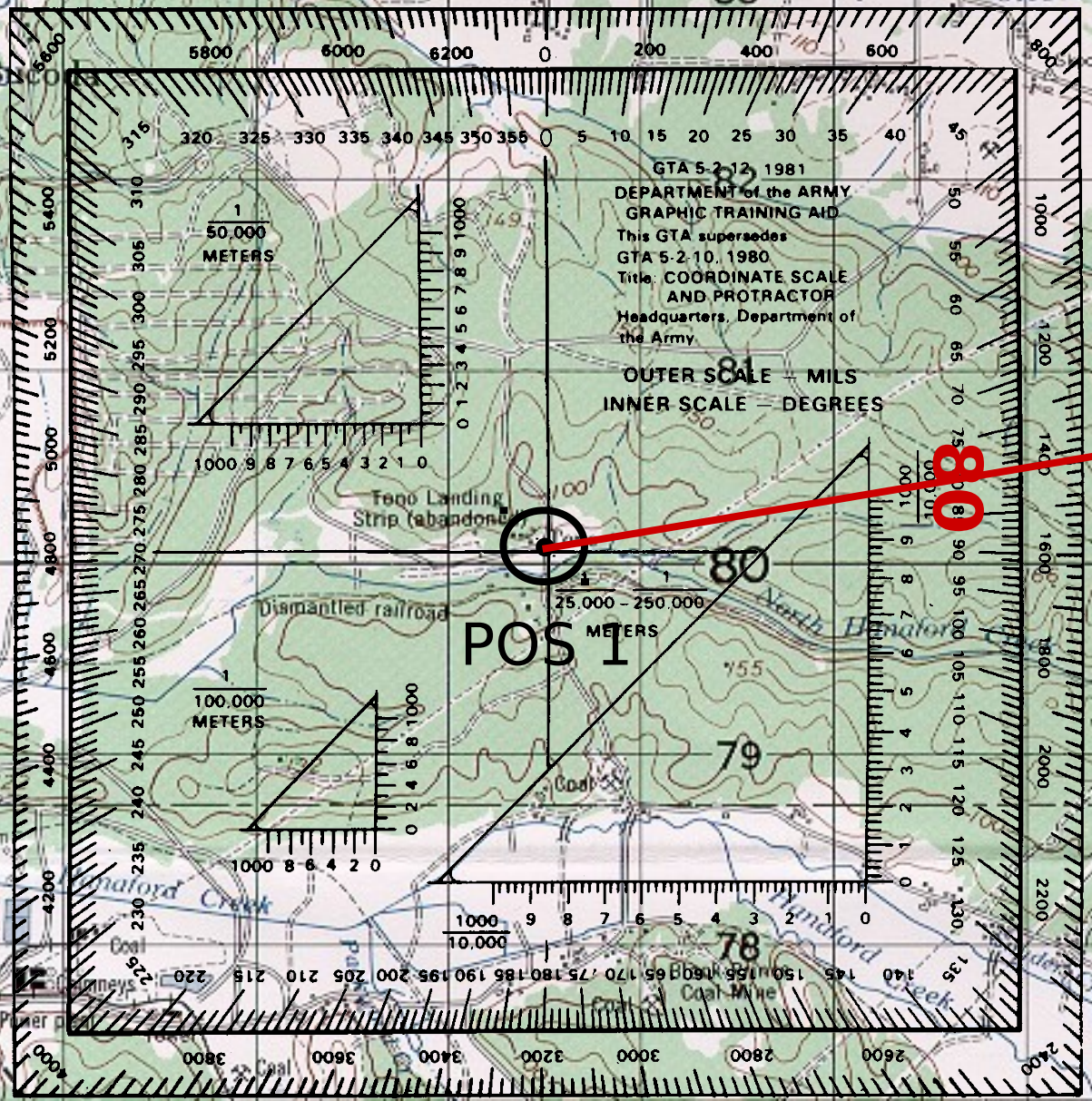
STEP 4. CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 59 DEGREES

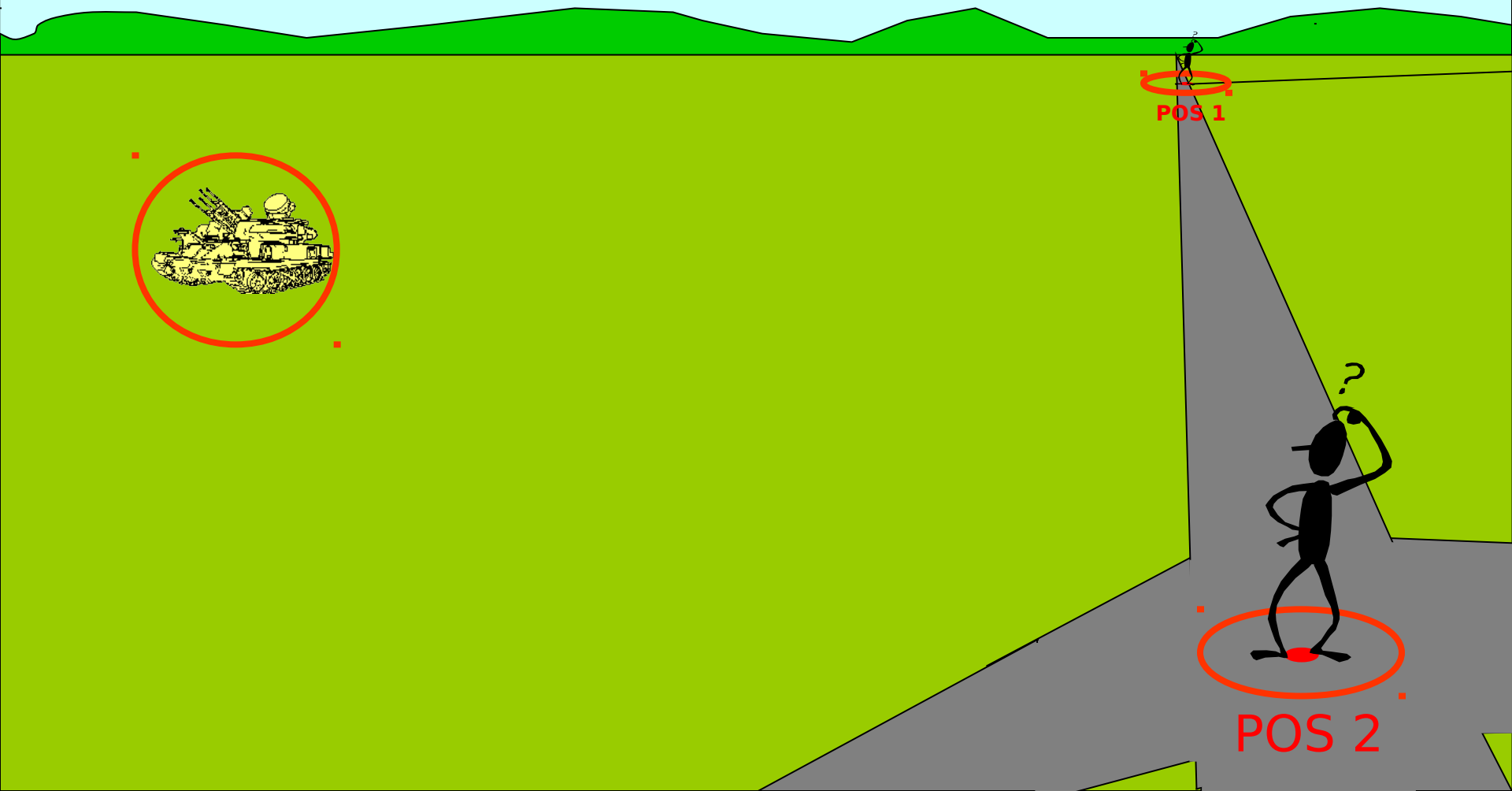
EASTERLY G-M ANGLE: +21 DEGREES

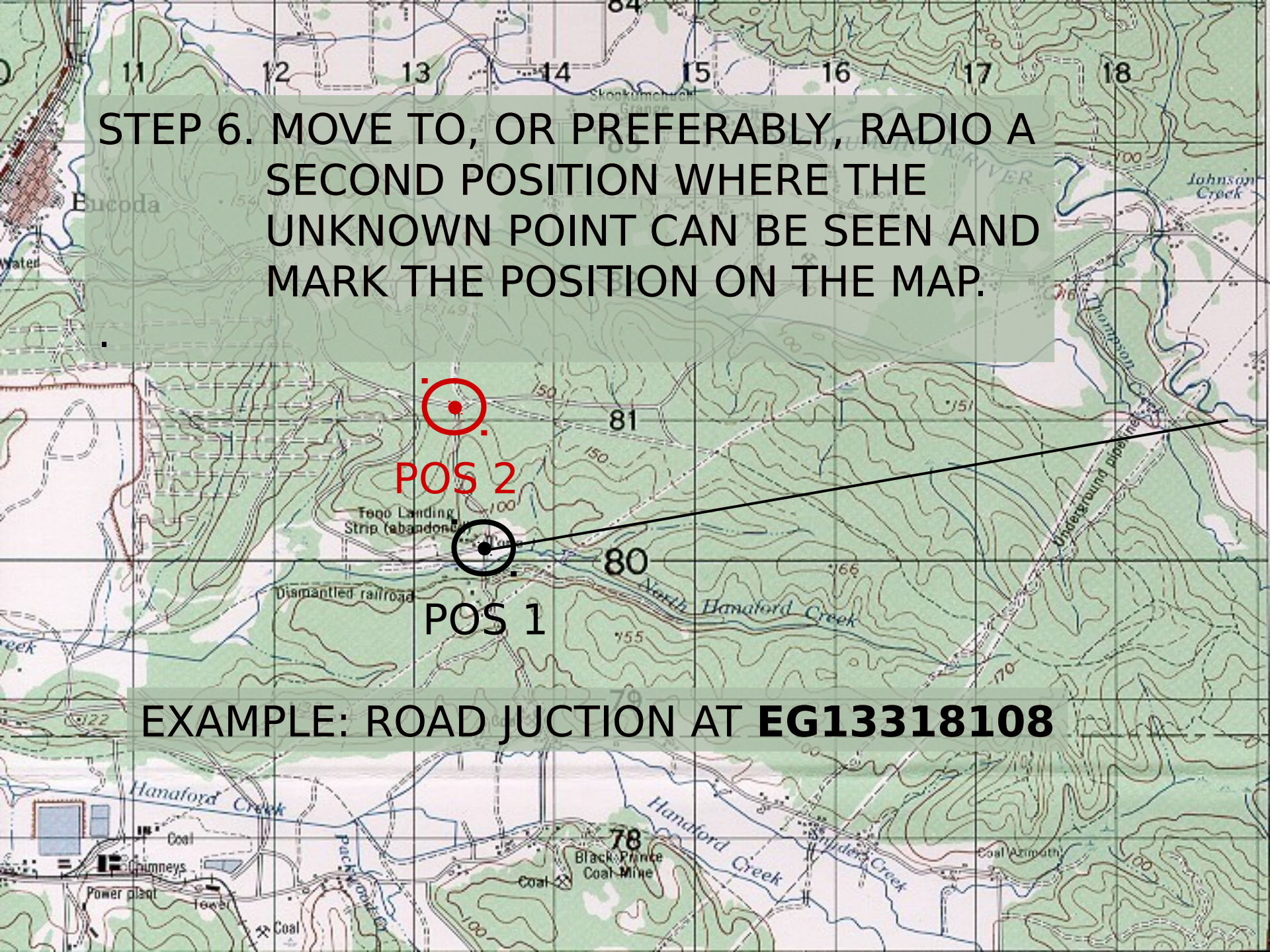
GRID AZIMUTH: 80 DEGREES

STEP 5. DRAW A LINE FROM THE ROAD JUNCTION ALONG THE 80 DEGREE GRID AZIMUTH.

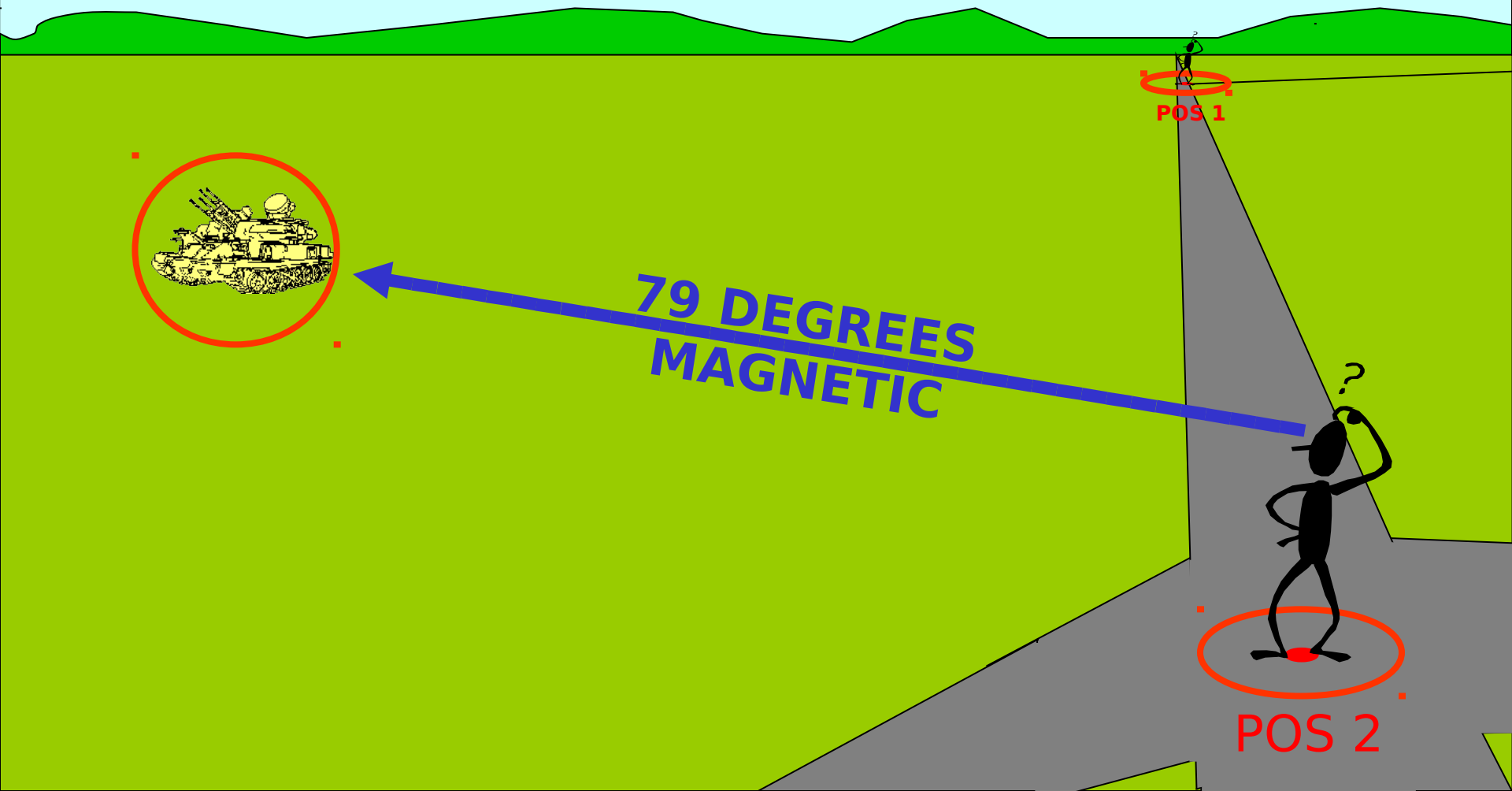


STEP 6. MOVE TO, OR PREFERABLY, RADIO A SECOND POSITION WHERE THE UNKNOWN POINT CAN BE SEEN AND MARK THE POSITION ON THE MAP.




STEP 6. MOVE TO, OR PREFERABLY, RADIO A SECOND POSITION WHERE THE UNKNOWN POINT CAN BE SEEN AND MARK THE POSITION ON THE MAP.
.
POS 2
POS 1
EXAMPLE: ROAD JUCTION AT **EG13318108**
Eucoda
Johnson Creek
Thompson
Underground pipeline
Fego Landing Strip (abandoned)
Dismantled railroad
North Hanaford Creek
Hanaford Creek
Coal
Chimneys
Power plant
Tower
Black Prince Coal Mine
Coal Azimuth
81
80
78
11
12
13
14
15
16
17
18

STEP 7. DETERMINE THE MAGNETIC AZIMUTH FROM THE SECOND ROAD JUNCTION TO THE ENEMY POSITION.

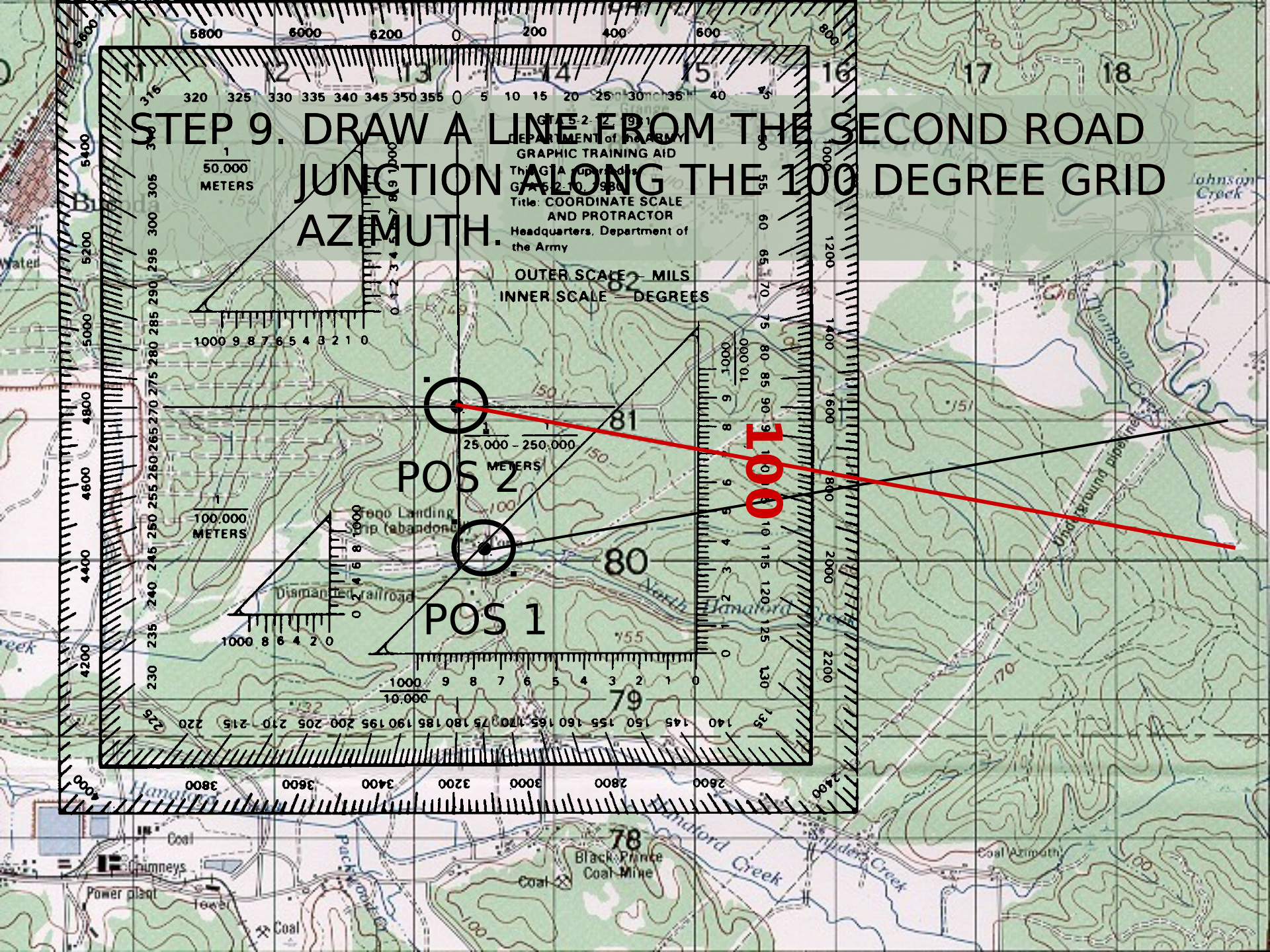


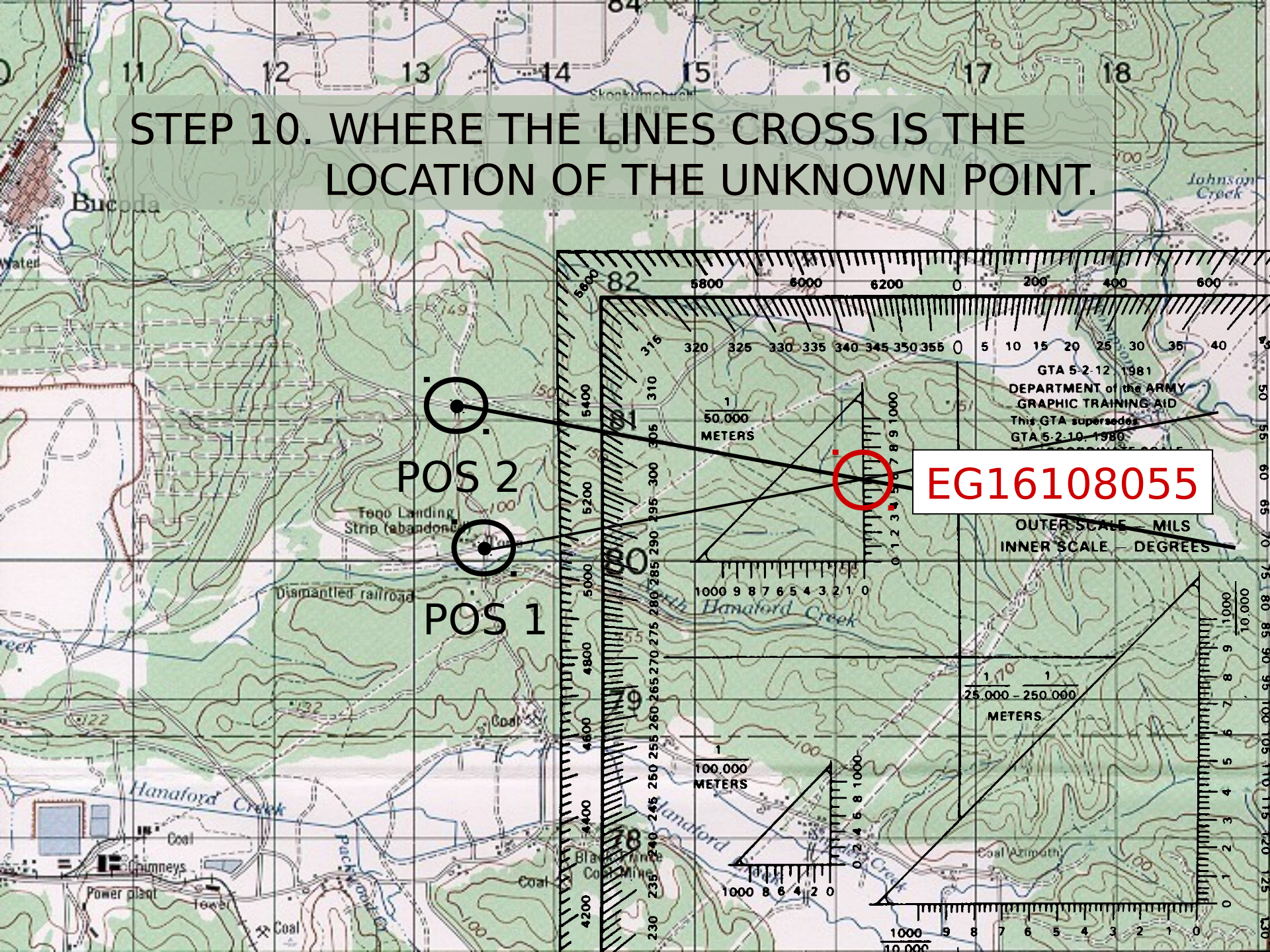
STEP 4. CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 79 DEGREES

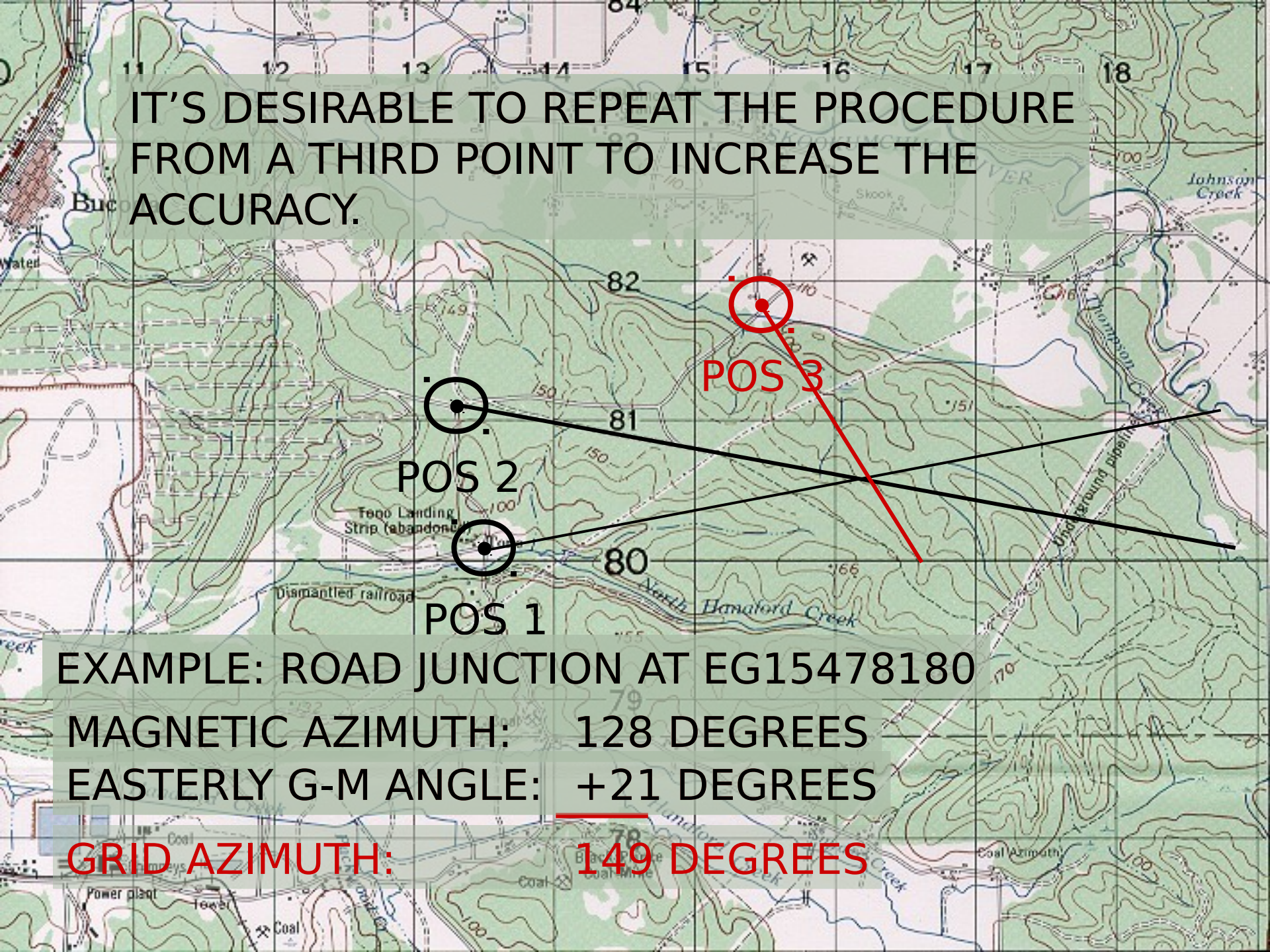
EASTERLY G-M ANGLE: +21 DEGREES

GRID AZIMUTH: 100 DEGREES


STEP 9. DRAW A LINE FROM THE SECOND ROAD JUNCTION ALONG THE 100 DEGREE GRID AZIMUTH.
DEPARTMENT of the ARMY
GRAPHIC TRAINING AID
Title: COORDINATE SCALE AND PROTRACTOR
Headquarters, Department of the Army
OUTER SCALE — MILS
INNER SCALE — DEGREES
1/50,000 METERS
1/25,000 – 1/250,000 METERS
1/100,000 METERS
1/10,000
POS 1
POS 2
100
Coal Azimuth
Black Prince Coal Mine
Power plant
Chimneys
Tower
Coal
Johnson Creek
Hanaford Creek
Underground pipeline
Dismantled railroad


STEP 10. WHERE THE LINES CROSS IS THE LOCATION OF THE UNKNOWN POINT.
POS 2
POS 1
EG16108055
GTA 5-2-12, 1981
DEPARTMENT of the ARMY
GRAPHIC TRAINING AID
This GTA supersedes
GTA 5-2-10, 1980
OUTER SCALE — MILS
INNER SCALE — DEGREES
1 / 50,000 METERS
1 / 25,000 – 250,000 METERS
1 / 100,000 METERS
Hanaford Creek
Johnson Creek
Dismantled railroad
Coal
Chimneys
Power plant
Tower

IT'S DESIRABLE TO REPEAT THE PROCEDURE FROM A THIRD POINT TO INCREASE THE ACCURACY.

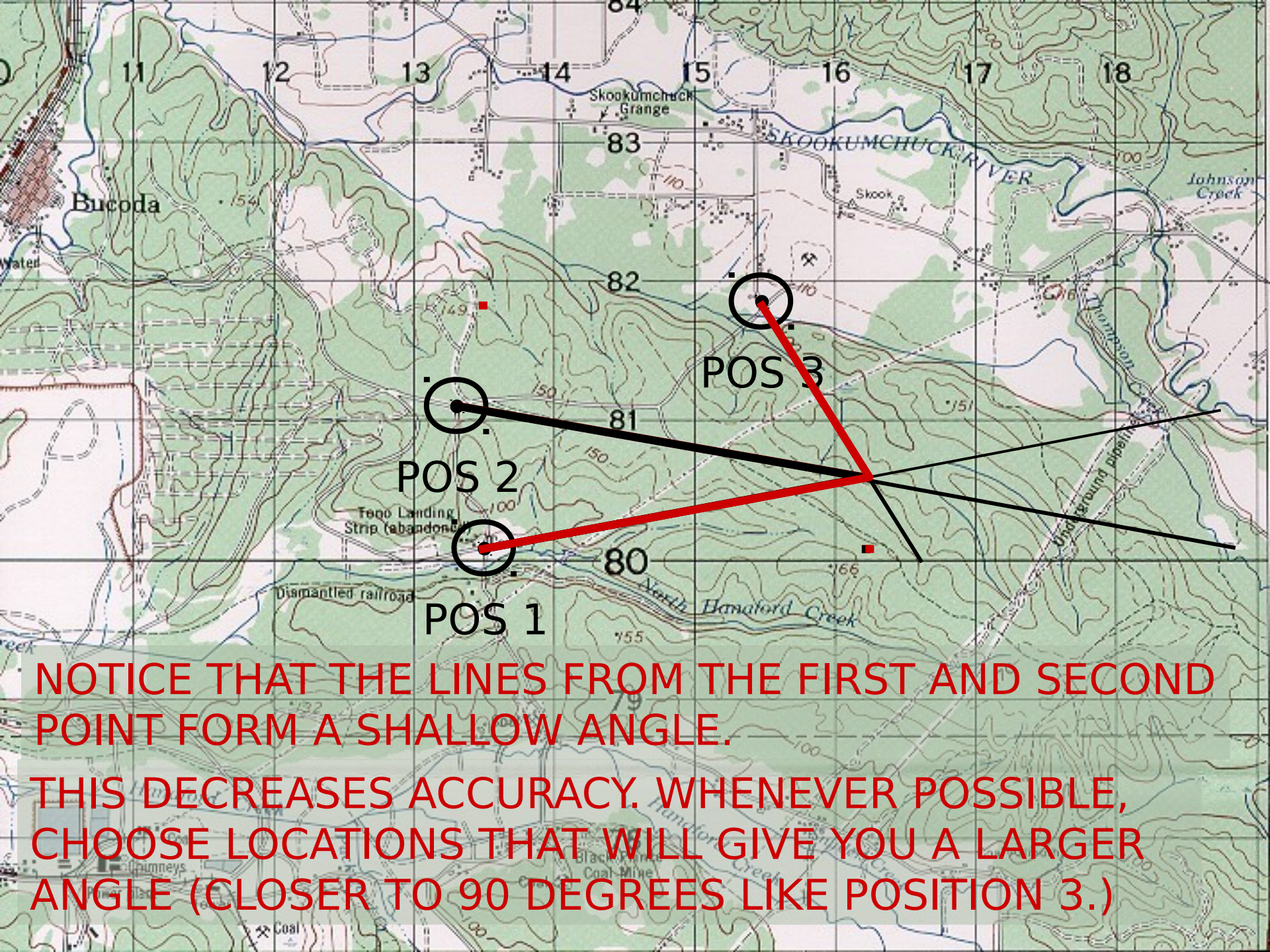


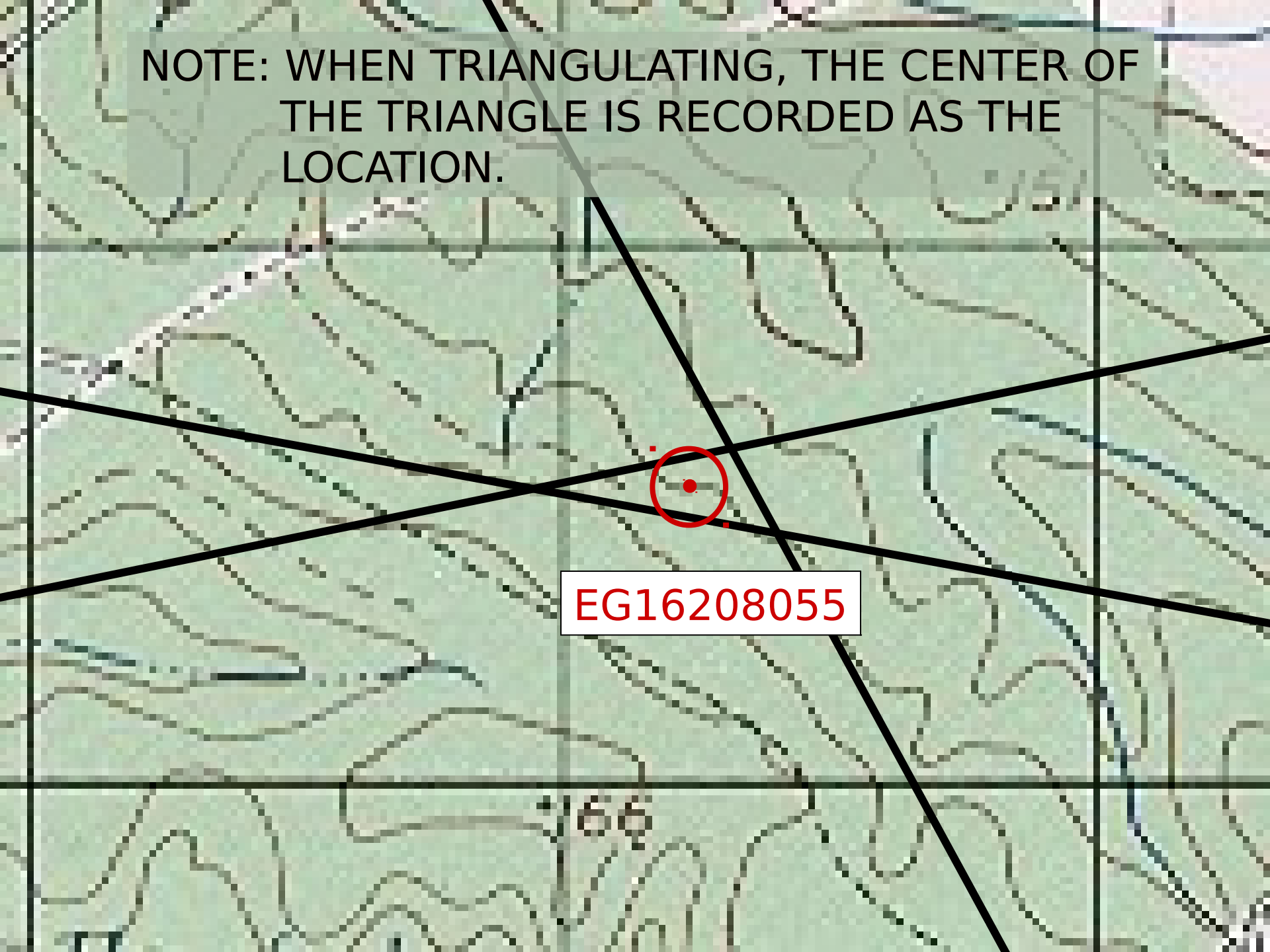
EXAMPLE: ROAD JUNCTION AT EG15478180

MAGNETIC AZIMUTH: 128 DEGREES

EASTERLY G-M ANGLE: +21 DEGREES

GRID AZIMUTH: 149 DEGREES


POS 3
POS 2
POS 1
NOTICE THAT THE LINES FROM THE FIRST AND SECOND POINT FORM A SHALLOW ANGLE.
THIS DECREASES ACCURACY. WHENEVER POSSIBLE, CHOOSE LOCATIONS THAT WILL GIVE YOU A LARGER ANGLE (CLOSER TO 90 DEGREES LIKE POSITION 3.)


NOTE: WHEN TRIANGULATING, THE CENTER OF THE TRIANGLE IS RECORDED AS THE LOCATION.
EG16208055
166

PRACTICAL EXCERCISE

YOUR SQUAD OCCUPIES TWO OBSERVATION POSTS. THE TEAM AT THE WATER TOWER IN GRID SQUARE EG0985 SEES THE ENEMY AT A MAGNETIC AZIMUTH OF 351 DEGREES. THE SECOND TEAM, LOCATED AT THE WATER TOWER IN GRID SQUARE EG1185 SEES THE ENEMY AT A MAGNETIC AZIMUTH OF 300 DEGREES.

QUESTION: WHAT IS THE GRID LOCATION OF THE ENEMY?

ANSWER: GRID COORDINATE EG09798765

PRACTICAL EXERCISE #2

YOUR SQUAD IS OPERATING AS AN OBSERVATION TEAM AND YOU SEE SIX ENEMY HELICOPTERS LAND AND THEN DISAPPEAR FROM YOUR SIGHT. PRIOR TO THE HELICOPTERS DISAPPEARING, YOU SHOT A MAGNETIC AZIMUTH TO THE LOCATION WHERE YOU SAW THEM LAND. THIS MAGNETIC AZIMUTH IS 316 1/2 DEGREES. YOUR LOCATION IS THE BRIDGE IN GRID SQUARE EH1000. YOU CONTACT YOUR OTHER TEAM LOCATED IN THE ZION CHAPEL TOWER AT GRID SQUARE EH1102. THEY HAVE A SIGHTING OF SIX ENEMY HELICOPTERS AT A MAGNETIC AZIMUTH OF 229 1/2 DEGREES. BOTH YOUR TEAMS PERFORM AN INTERSECTON.

QUESTION: WHAT IS THE GRID LOCATION AND THE TYPE OF TERRAIN WHERE THE SIX ENEMY HELICOPTERS LANDED?

ANSWER: GRID LOCATION EH093022, DEPRESSION.

INTERSECTION WITHOUT A COMPASS

STEP 1. ORIENT THE MAP TO THE GROUND.

STEP 2. LOCATE YOUR POSITION ON THE GROUND AND MARK YOUR POSITION ON THE MAP.

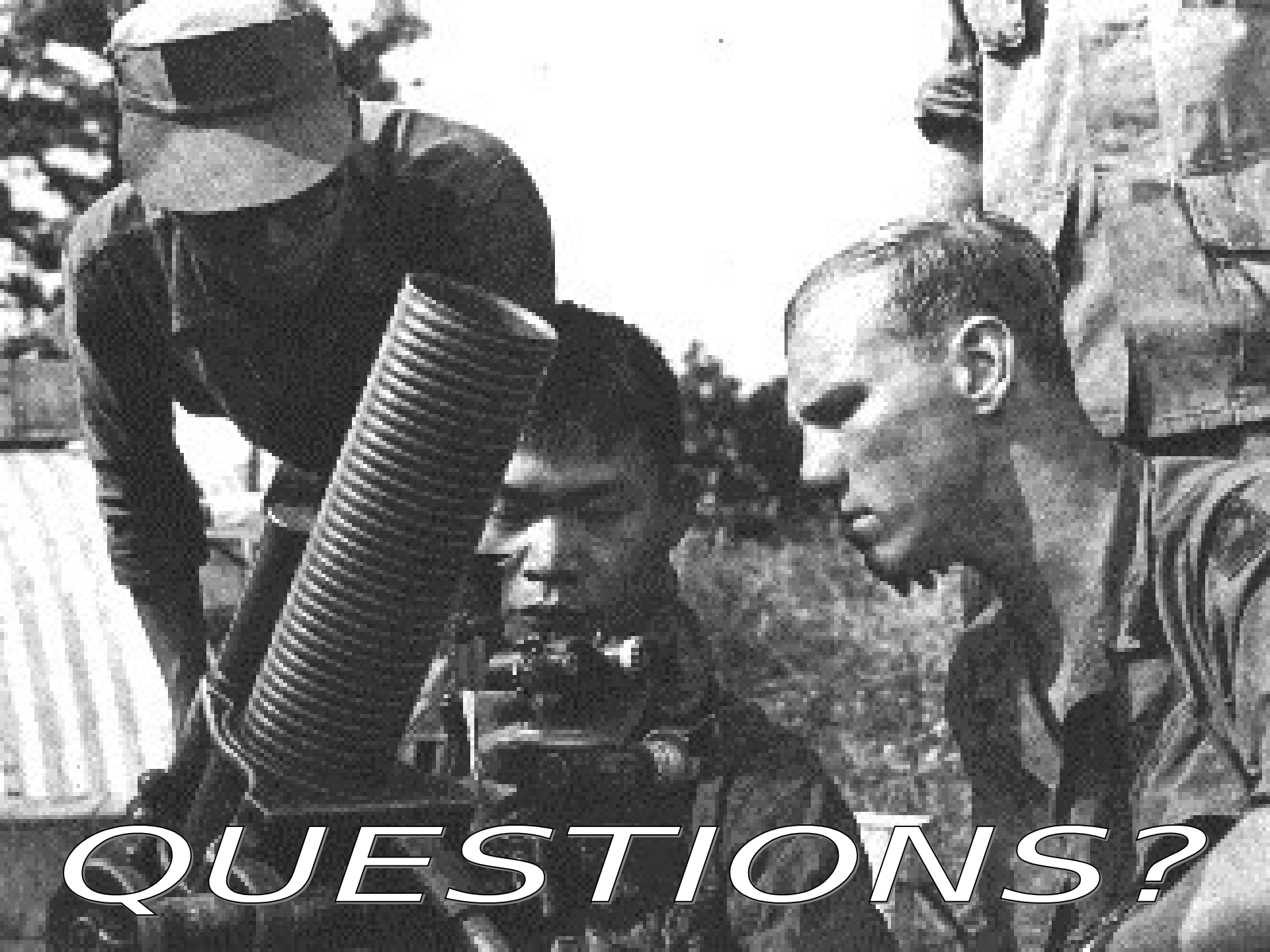
STEP 3. LAY A STRAIGHT EDGE (I.E. PROTRACTOR) WITH ONE END AT YOUR POSITION AS A PIVOT POINT, THEN ROTATE THE STRAIGHT EDGE UNTIL YOU SIGHT THE UNKNOWN POINT ALONG THE EDGE.

STEP 4. DRAW A LINE ALONG THE STRAIGHT EDGE.

STEP 5. REPEAT PROCEDURES 1 THRU 4 AT AN ALTERNATE KNOWN POSITION.

STEP 6. THE INTERSECTION OF LINES IS THE LOCATION OF THE UNKNOWN POINT.

STEP 7. AGAIN, CHECK FOR ACCURACY, YOU MAY USE A THIRD POSITION.


QUESTIONS?

TAKE A BREAK